

## **REMARKS/ARGUMENTS**

### ***Status of the Application and claims***

Of claims 1-9 are pending in the application.

Claims 4-9 are currently amended.

Claims 1-3 were rejected under 35 U.S.C. § 103 (a).

### ***Objection under 35 U.S.C. § 1.75 (c)***

Claims 4-9 were objected to for being in proper form since a multiple dependent claim cannot depend from a multiple dependent claim. To overcome the objection claims 4-9 were amended to overcome the objection. In view of the amendments to the claims this objection should be withdrawn.

### ***Rejections Under 35 U.S.C. § 103(a)***

In regard to paragraph 4 of the office action, the subject matter of the various claims was commonly owned at the time the inventions were made and there are no obligations under 37 CFR 1.56.

Claims 1-3 were rejected under 35 U.S.C. § 103(a) as being obvious over Schlaak (U.S. Patent No. 5,976,343), *hereinafter* "Schlaak" in view of US patent 6,331,326 to Tsunoda et al. (hereafter Tsunoda).

As explained in Applicants' specification at page 2, lines 7-29, known coating compositions, including those in the primary reference, Schlaak, have a weakness in that

the production of multi-layer coatings in light metallic color shades, in particular silver color shades, is not readily possible. The reason is UV light (UV radiation), as a constituent of natural daylight, passes through the coating layers applied to the EDC [electrodeposition coating] primer to the surface of the EDC primer to a noticeable extent in the absence of a primer surfacer layer and causes degradation of the EDC primer . . . . The possible undesired long-term consequences of an inadmissible level of UV light penetration to the EDC layer are chalking of the EDC layer and delamination of the multi-layer coating over the service life of the coated substrates.

UV absorbers are one solution to the problem, but UV absorbers are not very useful in base coat layers and/or clear coat layers (see page 2, line 30 – page 3, line 3). Applicants' claimed invention, however, solves the problem without the use of UV absorbers through Applicants' novel and nonobvious *combination* of (1) a solids content of 15 to 30 wt.% together with (2) a pigment content to resin solids content

weight ratio of 0.3:1 to 0.45:1 together with (3) the fact that the pigment content consists of 90 to 100% by weight of at least one non-leafing aluminum pigment together with (4) the fact that the aluminum pigment is passivated by chromating, coated with a silicon-oxygen network, or a combination thereof. Elements 1-3 must be present in order to obtain the acceptable, and now claimed, UV transmission, and element 4 is needed in order to maintain acceptable technological properties.

Applicants have solved a problem of degradation by UV light that has vexed light colored multilayer coatings wherein the base coat layer contains metallic pigments, in particular aluminum pigments. Schlaak does not recognize that such a problem even exists. Therefore, one skilled in the art would not even look to Schlaak to solve this problem let alone modify Schlaak as suggested by the Examiner to include the various parameters of Applicants' amended claims to arrive at the invention as set forth in the amended claims. Without Applicants' specification being used as a roadmap, one could not arrive at the claimed invention which is the obvious impermissible use of hindsight. "[O]nly knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure...is proper" (MPEP 2145 X.A). In the present case, the knowledge was gleaned from Applicants' disclosure and therefore constitutes "impermissible hindsight".

The base coats produced by Applicants' claimed process do have a usual solids content of 15 to 30 wt.%. The ratio by weight of pigment content to resin solids content of 0.3:1 to 0.45:1 is also known for waterborne base coats, but this ratio is unusually high for waterborne metallic base coats with a *light metallic color shade*. Pigment content is 90 to 100% by weight of aluminum pigment, which lies in the nature of light metallic color shades. The resulting claimed range of aluminum pigment in the coating composition is thus an unusually high calculated as 3.1% to 9.3%. The reason for using such a large proportion of aluminum pigments in the base coat is to allow for reduction of UV transmission to the EDC primer layer.

However, It is not possible to use such a large proportion of aluminum pigments necessary for effective UV transmission reduction if the wrong aluminum pigments are selected. If unclaimed aluminum pigments are selected, the coating loses the necessary technological properties. This effect is demonstrated in Table 3

of Example 6 (specification pages 26-27). The experiments therein are well suited to demonstrate the effect of the invention by variation of key parameters. Additional data should not be necessary. For example, any coating containing below the claimed lower limit of aluminum pigment, that is 90%, would result in a coating outside of the light metallic color shades, which in effect would not be a true comparison coating. Coatings having a pigment content to solids content weight ratio below 0.03:1 would not have the required UV transmission reduction.

The effectiveness of Applicants' claimed invention is also demonstrated in Example 5 at page 25, line 14 – page 26, Table 2. In Example 5, the comparison coating of Example 1 has a UV transmission at 290 to 380 nm of between 0 and 0.6% and a UV transmission at 380 to 400 nm of between 0.6 to 0.7%. Amended claim 2 now requires that a UV transmission of less than 0.1% in the wavelength range from 290 to 380 nm and of less than 0.5% in the wavelength range from 380 to 400 nm. Thus, Example 1 comparison coatings have an *unacceptable* UV transmission as measured by industry specifications (see page 2, lines 21-25) and required by claim 2 and the claims dependent thereon. Contrarily, coatings from Examples 2-4, produced via a process of the invention, all have UV transmission at 290 to 380 nm of between 0 and 0.09% and at 380 to 400 nm of between 0.09% to 0.4%, placing all of these coating within the claimed UV transmission ranges.

Schlaak does not disclose waterborne basecoats similar or identical to those used as unmodified waterborne basecoats in Applicants' claim 2 process as amended. Not only is Schlaak silent as to the specific type of aluminum pigments and the proportion of the aluminum pigments, it also does not disclose the combination of aluminum pigments with (1) the solids content, (2) the ratio by weight of pigment content to resins solids content, and (3) the composition of the pigment content as required by Applicants' claim 2 process. Only when these three requirements of Applicants' claim 2 process are met *in combination* is it possible to have a low UV transmission when producing multilayer coatings in light metallic color shades, and only then do these multilayer coatings have the required technological properties. Schlaak, alone or in combination with Kiehl and Falcoff, fails to suggest the desirability of Applicants' claimed combination. See MPEP § 2143.01(III) ("The mere fact that references *can* be combined or modified does not render the resultant

combination obvious unless the result would have been predictable to one of ordinary skill in the art.”) (emphasis in original).

Tsunoda discloses a process where a primer (A), a first metallic paint (B) containing conventional 100-1000 nm thick aluminum flakes and a second metallic paint (C) containing thin metal flakes having thicknesses not greater than 0.08  $\mu\text{m}$  are coated on a substrate. (Note: Tsunoda's metallic paints (A) and (B) have different pigment compositions, whereas the modified and the unmodified basecoats used in the process of the present invention don't, they both have the same pigment composition). The process of Tsunoda achieves a coating having plated-metal like appearance and being superior in hiding power for hiding sand scratches. Col.6, lines 47-61 explains the principle: The first metallic paint containing the thick aluminum flakes provides for the sand scratch hiding power, whereas the second metallic paint containing the thin aluminum flakes provides for the plated metal-like appearance.

The Examiner's conclusion that it would have been obvious to use the metal pigments disclosed in Tsunoda in the process of Schlaak appears is respectfully traversed. The Office alleges that aluminum flakes of 100-1000 nm thickness are disclosed in Tsunoda, however in the present invention we are claiming only 10-100 nm thick metal flake pigments. There is no teaching or suggestion to one of ordinary skill in the art in Tsunoda to use such thin metal flakes for UV-transmission reduction purposes. Rather, one of ordinary skill in the art would learn from Tsunoda that the thin metal flakes having thicknesses not greater than 0.08  $\mu\text{m}$  used in the second metallic paint (C) serve for the formation of metal-like appearance of the coating (Tsunoda, col. 6, lines 54-61). No such use is either contemplated in the present invention. Thus, it is not seen why claims 1-3 are obvious over Schlaak in view of Tsunoda.

### **Summary**

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. In order to expedite disposition of this case, the Examiner is invited to contact Applicants' representative at the telephone number below to resolve any remaining issues. Should there be any additional fee due

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which is not accounted for, please charge such fee to Deposit Account No. 04-1928  
(E.I. du Pont de Nemours and Company).

Respectfully submitted,

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